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accurate position can be found if photographic charts can be taken showing this star. Professor BAILEY has been notified of this discovery and if the star is still bright enough, he will doubtless obtain photographs showing its position and spectrum.

"The similarity of these two new stars is interesting; first, since it has proved a means of discovering one of these objects, and secondly, because if confirmed by other new stars it will indicate that they belong to a distinct class resembling each other in composition or physical condition.

"The star was approximately of the 7th magnitude photographically on July 10, since it was about equal to *Cord. G. C. 20910*, magnitude 6.9, whose spectrum is of the second type. The nearest catalogue stars are *Cord. G. C. 20940*, magnitude 8, which has a spectrum of the first type, and *Cord. G. C. 20926*, magnitude $8\frac{3}{4}$, which has a spectrum of the second type. The new star lies nearly midway between these two."

EDWARD C. PICKERING,

Director Harvard College Observatory.

CAMBRIDGE, MASS., U. S. A., Nov. 9, 1893.

THE DISCOVERY OF ASTEROIDS IN 1893.

Thirty-four minor planets were discovered in 1893: eight by WOLF of Heidelberg, twenty-five by CHARLOIS of Nice and one by BORELLY of Marseilles. WOLF and CHARLOIS used the photographic method, first successfully employed by WOLF in 1891.

The number of minor planets now known is about 380. The rate of their discovery by photography in the past two years has been so rapid that the computers are no longer able to make the computations for determining their orbits properly. We believe that Dr. WOLF has for this reason desisted from making further special search for them. Dr. WOLF's decision is to be commended. The cosmical questions with which the asteroids may be connected will certainly be nearest solution if the computations for those already discovered are kept up to date.

W. W. C.

CONFERRING OF THE DEGREE OF DOCTOR OF MATHEMATICAL SCIENCES UPON MISS DOROTHEA KLUMPKE.

Mlle. KLUMPKE, who has just gained the degree of Doctor of Mathematical Sciences at the Sorbonne, is the first lady who has obtained that distinction. The full title of her thesis was "Con-

tribution à l'étude des anneaux de Saturne," and the following is a translation from *La Nature* of the complimentary terms in which M. DARBOUX addressed the gifted authoress in granting her the degree: "You have occupied yourself with one of the most interesting questions in astronomy. The great names of GALILEO, HUYGHENS, CASSINI and LAPLACE, without speaking of those of my illustrious colleagues and friends, are connected with the history of each of the great advances in the attractive but difficult theory of the rings of Saturn. Your work is not a slight contribution to the subject, and it places you in an honorable position among the ladies who have devoted themselves to the study of mathematics. During the last century Mlle. MARIE AGNESI gave us a work on the differential and integral calculus. Since then SOPHIA GERMAIN, as remarkable for her literary and philosophic talent as for her mathematical faculties, was held in esteem by the great geometers who honored our country at the beginning of this century. And but a few years ago the Academy of Sciences, on the report of a commission in which I had the honor to take part, awarded one of its best prizes to Mme. KOWALEWSKA, placing her name by the side of those of EULER and LAGRANGE in the history of discoveries relating to the theory of the movement of a solid body around a fixed point. In your turn you have entered upon your career. We know that for some years you have devoted yourself with great zeal and success to investigations connected with the star chart. Your thesis, which you have prepared according to our course of higher mathematics, with an assiduity that we could not ignore, is the first that a lady has presented and successfully sustained before our faculty to obtain the degree of Doctor of Mathematical Sciences. You have worked in a deserving manner, and the faculty has unanimously decided to declare you worthy of the grade of Doctor."—From *Nature* for December 28, 1893.

PHOTOGRAPHIC MAP OF THE NORMAL SOLAR SPECTRUM
[MADE BY PROFESSOR H. A. ROWLAND].

"This series of photographs of the solar spectrum has been made in the Physical Laboratory of the JOHNS HOPKINS University. Several concave gratings, of 6 inches diameter and $21\frac{1}{2}$ feet radius, having 10,000 or 20,000 lines to the inch, were used for the purpose. The process of making this map is the well-